

REMARKS

I. Introduction

With the cancellation without prejudice of claim 15, claims 8 to 14 are pending in the present application. In view of the foregoing amendments and the following remarks, it is respectfully submitted that all of the presently pending claims are allowable, and reconsideration is respectfully requested.

II. Rejection of Claims 8 to 14 Under 35 U.S.C. § 103(a)

Claims 8 to 14 were rejected under 35 U.S.C. § 103(a) as unpatentable over the combination of U.S. Patent No. 6,039,271 ("Reiter") and U.S. Patent No. 6,405,946 ("Harata et al."). It is respectfully submitted that the combination of Reiter and Harata et al. does not render unpatentable the present claims for at least the following reasons.

Claim 8 relates to a method for producing and securing an apertured disk for a fuel injector for a fuel-injection system of an internal combustion engine, the apertured disk having an opening contour which ensures a complete passage of a fluid, the method including: a) providing a flat, metallic sheet having a constant thickness; b) reducing a thickness in one region of the sheet by one of impressing and embossing; c) after the reducing, introducing at least one spray-discharge opening in the region having reduced thickness; d) after the introducing, machining the sheet until an apertured disk having predefined outside dimensions is attained; and e) securing the apertured disk on a valve-seat member of the fuel injector in such a way that a lower end face of the valve-seat member delimits, along with the reduced-thickness region, an intake region of the apertured disk, and a vertical projection of the lower end face of the valve seat member onto an upper surface of the reduced-thickness region completely overlaps the at least one spray-discharge opening.

Although Applicants do not necessarily agree with the merits of the rejection, to facilitate matters, claim 8 has been amended without prejudice to incorporate the features of claim 15, and claim 15 has been canceled without prejudice. Thus, claim 8 recites reducing a thickness in one region of the sheet by one of impressing and embossing to **form a frustoconical depression in the sheet.**

Neither Reiter nor Harata et al. discloses, or even suggests the feature of claim 8 of reducing a thickness in one region of a sheet by one of impressing and embossing. On page 3, the Final Office Action admits that Reiter does not disclose the above-mentioned feature. In addition, Harata et al. shows, in Figures 4 and 5, a fuel injector including a plate (60) having a region of reduced thickness and through holes (60a to 60d) situated in the region of reduced thickness. However, as admitted on page 3 of the Final Office Action, Harata et al. does not disclose forming the region of reduced thickness by impressing or embossing. Furthermore, in an attempt to provide a motivation for providing the injection port disk (34) of Reiter with a region of reduced thickness via impressing or embossing, the Final Office Action states the following:

...[i]t would have been obvious to one having ordinary skill in the art at the time the invention was made to have reduced thickness in a material as in the disk of Reiter as shown by Harata et al [sic], since it is known to reduce thickness by all forms of stamping and embossing, and after which forming apertures and then finishing the disk by machining, as both are known to have and [sic] affect [sic] on material by their implicit nature, and would further be desirable in order to provide a part with a desired thickness tolerance in order to ensure proper fitting into its designated placement within an apparatus.

The alleged motivation for providing a region of reduced thickness in the injection port disk (34) of Reiter, “to provide a part with a desired thickness tolerance in order to ensure proper fitting into its designated placement within an apparatus,” is untenable, as neither Reiter nor Harata et al. indicates how providing disk (34) with a depression attains a thickness tolerance not attained already by Reiter’s processing of the disk (34), or how providing disk (34) with a depression ensures proper fitting of disk (34) onto valve seat body (16) or valve housing (1). Thus, the Final Office Action does not provide a tenable motivation for combining the disclosures of Reiter and Harata et al. Furthermore, even if it were proper to combine the disclosures of Reiter and Harata et al. (which is not conceded), **the combination of Reiter and Harata et al. does not disclose, or even suggest, that reducing a thickness in one region of a sheet forms a frustoconical depression in the sheet.** As is apparent from Figure 4 of Harata et al., the depression in plate

(60) that forms chamber (51) is cylindrical, and not frustoconical. In addition, in an attempt to establish the alleged obviousness of forming a frustoconical depression in the injection port disk (34) of Reiter, the Final Office Action states the following from page 4 to page 5:

...[i]t can be positively argued that tooling designed to form a thickness by impressing or embossing its [sic] quite capable of forming a frustoconical depression in the sheet, as regardless of the sharpness of sheet metal tooling, radii will certainly be formed into the corners, edges or seams that are formed by the tool(s), such that it would have been obvious to one having ordinary skill in the art at the time the invention was made to have designed into the sheet a frustoconical depression.

The alleged capability of sheet metal tooling of forming radii, and consequently a frustoconical depression, in sheet metal is apparently a statement of the Examiner's personal knowledge, and Applicants respectfully request that the facts underlying this statement be supported by an affidavit from the Examiner. Furthermore, even if the above-mentioned sheet metal tooling were capable of forming radii in corners, edges or seams formed by a tool (which is not conceded by Applicants), the mere forming of radii in the top or bottom edges of a depression formed in sheet metal by, e.g., a cylindrical punch does not result in a depression that is even approximately frustoconical. Moreover, the Final Office Action does not provide any tenable motivation for forming a frustoconical depression in the injection port disk (34) of Reiter. Accordingly, it is respectfully submitted that the combination of Reiter and Harata et al. does not render unpatentable claim 8 or dependent claims 9 to 14 for at least these reasons.

In view of the foregoing, withdrawal of this rejection is respectfully requested.

III. Conclusion

In light of the foregoing, Applicants respectfully submit that all pending claims are in condition for allowance. Prompt reconsideration and allowance of the present application are therefore earnestly solicited.

Respectfully submitted,

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Dated: December 11, 2009

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